A Variable Resolution Global Ocean Model

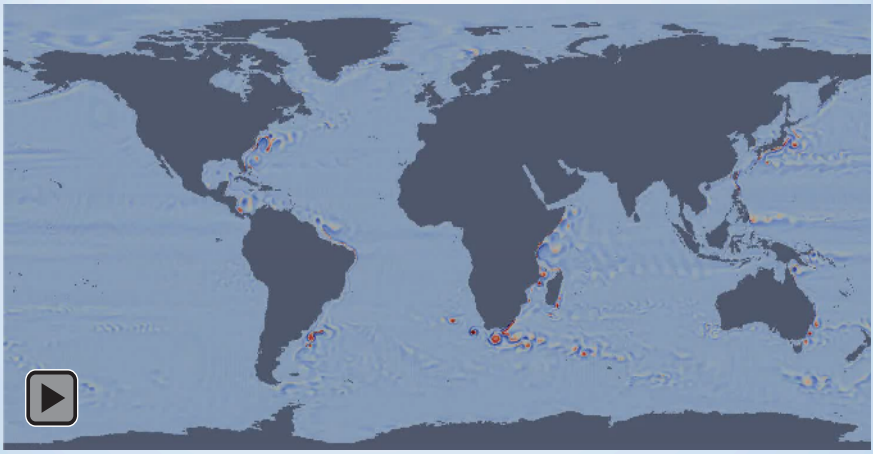

Figure 1. Vorticity in an MPAS-Ocean simulation on a quasi-uniform 30-km gridcell mesh. These early tests produce expected behavior such as the Gulf Stream, Kuroshio Current, and ocean eddies.

Investigation of regional climate impacts is the motivation for the new Model for Prediction Across Scales (MPAS), which supports unstructured grids, so that high resolution may be placed in regional areas of interest, while lower resolution is used for the remainder of the earth (Fig. 2). MPAS-Ocean now has all functionality in place, and can run global ocean simulations (Fig 1).

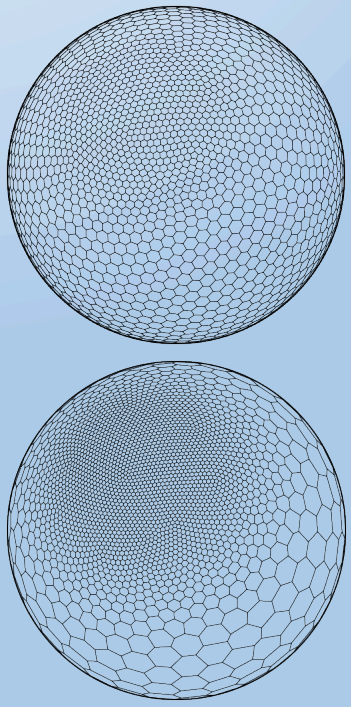

Figure 2. Examples of MPAS Voronoi tessellation unstructured meshes.

Mark Petersen, mpetersen@lanl.gov
505-667-7399

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